



SEQUENCE LISTING

<110> Springer, Timothy
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<120> NOVEL PROTEINS WITH INTEGRIN-LIKE ACTIVITY

<130> A-70586-1/RFT/RMS/RMK

<140> US 09/902,481

<141> 2001-07-09

<150> US 60/216,600

<151> 2000-07-07

<160> 7

<170> PatentIn version 3.1

<210> 1

<211> 1153

<212> PRT

<213> Homo sapiens

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Gly Phe Gly Gln Ser Val Val Gln Leu Gln Gly Ser Arg Val Val Val
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Gly Ala Pro Gln Glu Ile Val Ala Ala Asn Gln Arg Gly Ser Leu Tyr
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Gln Cys Asp Tyr Ser Thr Gly Ser Cys Glu Pro Ile Arg Leu Gln Val
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Pro Val Glu Ala Val Asn Met Ser Leu Gly Leu Ser Leu Ala Ala Thr
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Thr Ser Pro Pro Gln Leu Leu Ala Cys Gly Pro Thr Val His Gln Thr
100 105 110

Cys Ser Glu Asn Thr Tyr Val Lys Gly Leu Cys Phe Leu Phe Gly Ser
115 120 125

Asn Leu Arg Gln Gln Pro Gln Lys Phe Pro Glu Ala Leu Arg Gly Cys
130 135 140

Pro Gln Glu Asp Ser Asp Ile Ala Phe Leu Ile Asp Gly Ser Gly Ser
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Ile Ile Pro His Asp Phe Arg Arg Met Lys Glu Phe Val Ser Thr Val
165 170 175

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Met Glu Gln Leu Lys Lys Ser Lys Thr Leu Phe Ser Leu Met Gln Tyr
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Pro Asn Pro Arg Ser Leu Val Lys Pro Ile Thr Gln Leu Leu Gly Arg
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Thr His Thr Ala Thr Gly Ile Arg Lys Val Val Arg Glu Leu Phe Asn
    225                      230                      235                      240

Ile Thr Asn Gly Ala Arg Lys Asn Ala Phe Lys Ile Leu Val Val Ile
    245                      250                      255

Thr Asp Gly Glu Lys Phe Gly Asp Pro Leu Gly Tyr Glu Asp Val Ile
    260                      265                      270

Pro Glu Ala Asp Arg Glu Gly Val Ile Arg Tyr Val Ile Gly Val Gly
    275                      280                      285

Asp Ala Phe Arg Ser Glu Lys Ser Arg Gln Glu Leu Asn Thr Ile Ala
    290                      295                      300

Ser Lys Pro Pro Arg Asp His Val Phe Gln Val Asn Asn Phe Glu Ala
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Leu Lys Thr Ile Gln Asn Gln Leu Arg Glu Lys Ile Phe Ala Ile Glu
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Gly Thr Gln Thr Gly Ser Ser Ser Ser Phe Glu His Glu Met Ser Gln
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Glu Gly Phe Ser Ala Ala Ile Thr Ser Asn Gly Pro Leu Leu Ser Thr
    355                      360                      365

Val Gly Ser Tyr Asp Trp Ala Gly Gly Val Phe Leu Tyr Thr Ser Lys
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Glu Lys Ser Thr Phe Ile Asn Met Thr Arg Val Asp Ser Asp Met Asn
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Asp Ala Tyr Leu Gly Tyr Ala Ala Ala Ile Ile Leu Arg Asn Arg Val
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Gln Ser Leu Val Leu Gly Ala Pro Arg Tyr Gln His Ile Gly Leu Val
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Ala Met Phe Arg Gln Asn Thr Gly Met Trp Glu Ser Asn Ala Asn Val
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Lys Gly Thr Gln Ile Gly Ala Tyr Phe Gly Ala Ser Leu Cys Ser Val
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 Asp Leu Thr Met Asp Gly Leu Val Asp Leu Thr Val Gly Ala Gln Gly
 595 600 605
 His Val Leu Leu Leu Arg Ser Gln Pro Val Leu Arg Val Lys Ala Ile
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 Met Glu Phe Asn Pro Arg Glu Val Ala Arg Asn Val Phe Glu Cys Asn
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 Asp Gln Val Val Lys Gly Lys Glu Ala Gly Glu Val Arg Val Cys Leu
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 His Val Gln Lys Ser Thr Arg Asp Arg Leu Arg Glu Gly Gln Ile Gln
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 Phe Asn Val Thr Val Thr Val Arg Asn Asp Gly Glu Asp Ser Tyr Arg
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 Glu Ser Ala Ser Ser Thr Glu Val Ser Gly Ala Leu Lys Ser Thr Ser
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Gly Ile Gln Glu Glu Phe Asn Ala Thr Leu Lys Gly Asn Leu Ser
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Phe Asp Trp Tyr Ile Lys Thr Ser His Asn His Leu Leu Ile Val
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Ser Thr Ala Glu Ile Leu Phe Asn Asp Ser Val Phe Thr Leu Leu
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Ser Val Gly Gly Leu Leu Leu Leu Ala Leu Ile Thr Ala Ala Leu
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<400> 3

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20           25           30

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Gly Ala Pro Gln Glu Ile Val Ala Ala Asn Gln Arg Gly Ser Leu Tyr

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```

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Gln Cys Asp Tyr Ser Thr Gly Ser Cys Glu Pro Ile Arg Leu Gln Val
 50              55              60

Pro Val Glu Ala Val Asn Met Ser Leu Gly Leu Ser Leu Ala Ala Thr
 65              70              75              80

Thr Ser Pro Pro Gln Leu Leu Ala Cys Gly Pro Thr Val His Gln Thr
      85              90              95

Cys Ser Glu Asn Thr Tyr Val Lys Gly Leu Cys Phe Leu Phe Gly Ser
      100             105             110

Asn Leu Arg Gln Gln Pro Gln Lys Phe Pro Glu Ala Leu Arg Gly Cys
      115             120             125

Pro Gln Glu Asp Ser Asp Ile Ala Phe Leu Ile Asp Gly Ser Gly Ser
      130             135             140

Ile Ile Pro His Asp Phe Arg Arg Met Lys Glu Leu Val Ser Thr Ile
 145             150             155             160

Met Glu Gln Leu Lys Lys Ser Lys Thr Leu Phe Ser Leu Met Gln Tyr
      165             170             175

Ser Glu Glu Phe Arg Ile His Phe Thr Phe Lys Glu Phe Gln Asn Asn
      180             185             190

Pro Asn Pro Arg Ser Leu Ile Lys Pro Ile Thr Gln Leu Leu Gly Arg
      195             200             205

Thr His Thr Ala Thr Gly Leu Arg Lys Val Val Arg Glu Leu Phe Asn
      210             215             220

Ile Thr Asn Gly Ala Arg Lys Asn Ala Phe Lys Ile Leu Phe Leu Leu
 225             230             235             240

Thr Asp Gly Glu Lys Phe Gly Asp Pro Leu Gly Tyr Glu Asp Val Ile
      245             250             255

Pro Glu Leu Asp Arg Glu Gly Val Ile Arg Tyr Val Leu Gly Phe Gly
      260             265             270

Asp Ala Phe Arg Ser Glu Lys Ser Arg Gln Glu Leu Asn Thr Val Ala
      275             280             285

Ser Lys Pro Pro Arg Asp His Val Phe Gln Ala Asn Asn Phe Glu Ala
      290             295             300

Leu Lys Thr Val Gln Asn Gln Leu Arg Glu Lys Ile Phe Ala Ile Glu
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Gly Thr Gln Thr Gly Ser Ser Ser Ser Phe Glu His Glu Met Ser Gln

```



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Val Gly Ser Tyr Asp Trp Ala Gly Gly Val Phe Leu Tyr Thr Ser Lys
          355              360              365
Glu Lys Ser Thr Phe Ile Asn Met Thr Arg Val Asp Ser Asp Met Asn
          370              375              380
Asp Ala Tyr Leu Gly Tyr Ala Ala Ala Ile Ile Leu Arg Asn Arg Val
          385              390              395              400
Gln Ser Leu Val Leu Gly Ala Pro Arg Tyr Gln His Ile Gly Leu Val
          405              410              415
Ala Met Phe Arg Gln Asn Thr Gly Met Trp Glu Ser Asn Ala Asn Val
          420              425              430
Lys Gly Thr Gln Ile Gly Ala Tyr Phe Gly Ala Ser Leu Cys Ser Val
          435              440              445
Asp Val Asp Ser Asn Gly Ser Thr Asp Leu Val Leu Ile Gly Ala Pro
          450              455              460
His Tyr Tyr Glu Gln Thr Arg Gly Gly Gln Val Ser Val Cys Pro Leu
          465              470              475              480
Pro Arg Gly Gln Arg Ala Arg Trp Gln Cys Asp Ala Val Leu Tyr Gly
          485              490              495
Glu Gln Gly Gln Pro Trp Gly Arg Phe Gly Ala Ala Leu Thr Val Leu
          500              505              510
Gly Asp Val Asn Gly Asp Lys Leu Thr Asp Val Ala Ile Gly Ala Pro
          515              520              525
Gly Glu Glu Asp Asn Arg Gly Ala Val Tyr Leu Phe His Gly Thr Ser
          530              535              540
Gly Ser Gly Ile Ser Pro Ser His Ser Gln Arg Ile Ala Gly Ser Lys
          545              550              555              560
Leu Ser Pro Arg Leu Gln Tyr Phe Gly Gln Ser Leu Ser Gly Gly Gln
          565              570              575
Asp Leu Thr Met Asp Gly Leu Val Asp Leu Thr Val Gly Ala Gln Gly
          580              585              590
His Val Leu Leu Leu Arg Ser Gln Pro Val Leu Arg Val Lys Ala Ile
          595              600              605
Met Glu Phe Asn Pro Arg Glu Val Ala Arg Asn Val Phe Glu Cys Asn

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610          615          620
Asp Gln Val Val Lys Gly Lys Glu Ala Gly Glu Val Arg Val Cys Leu
625          630          635          640
His Val Gln Lys Ser Thr Arg Asp Arg Leu Arg Glu Gly Gln Ile Gln
645          650          655
Ser Val Val Thr Tyr Asp Leu Ala Leu Asp Ser Gly Arg Pro His Ser
660          665          670
Arg Ala Val Phe Asn Glu Thr Lys Asn Ser Thr Arg Arg Gln Thr Gln
675          680          685
Val Leu Gly Leu Thr Gln Thr Cys Glu Thr Leu Lys Leu Gln Leu Pro
690          695          700
Asn Cys Ile Glu Asp Pro Val Ser Pro Ile Val Leu Arg Leu Asn Phe
705          710          715          720
Ser Leu Val Gly Thr Pro Leu Ser Ala Phe Gly Asn Leu Arg Pro Val
725          730          735
Leu Ala Glu Asp Ala Gln Arg Leu Phe Thr Ala Leu Phe Pro Phe Glu
740          745          750
Lys Asn Cys Gly Asn Asp Asn Ile Cys Gln Asp Asp Leu Ser Ile Thr
755          760          765
Phe Ser Phe Met Ser Leu Asp Cys Leu Val Val Gly Gly Pro Arg Glu
770          775          780
Phe Asn Val Thr Val Thr Val Arg Asn Asp Gly Glu Asp Ser Tyr Arg
785          790          795          800
Thr Gln Val Thr Phe Phe Phe Pro Leu Asp Leu Ser Tyr Arg Lys Val
805          810          815
Ser Thr Leu Gln Asn Gln Arg Ser Gln Arg Ser Trp Arg Leu Ala Cys
820          825          830
Glu Ser Ala Ser Ser Thr Glu Val Ser Gly Ala Leu Lys Ser Thr Ser
835          840          845
Cys Ser Ile Asn His Pro Ile Phe Pro Glu Asn Ser Glu Val Thr Phe
850          855          860
Asn Ile Thr Phe Asp Val Asp Ser Lys Ala Ser Leu Gly Asn Lys Leu
865          870          875          880
Leu Leu Lys Ala Asn Val Thr Ser Glu Asn Asn Met Pro Arg Thr Asn
885          890          895
Lys Thr Glu Phe Gln Leu Glu Leu Pro Val Lys Tyr Ala Val Tyr Met

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Val Val Thr Ser His Gly Val Ser Thr Lys Tyr Leu Asn Phe Thr Ala
  915              920              925

Ser Glu Asn Thr Ser Arg Val Met Gln His Gln Tyr Gln Val Ser Asn
  930              935              940

Leu Gly Gln Arg Ser Leu Pro Ile Ser Leu Val Phe Leu Val Pro Val
  945              950              955              960

Arg Leu Asn Gln Thr Val Ile Trp Asp Arg Pro Gln Val Thr Phe Ser
  965              970              975

Glu Asn Leu Ser Ser Thr Cys His Thr Lys Glu Arg Leu Pro Ser His
  980              985              990

Ser Asp Phe Leu Ala Glu Leu Arg Lys Ala Pro Val Val Asn Cys Ser
  995              1000             1005

Ile Ala Val Cys Gln Arg Ile Gln Cys Asp Ile Pro Phe Phe Gly
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Ile Gln Glu Glu Phe Asn Ala Thr Leu Lys Gly Asn Leu Ser Phe
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Asp Trp Tyr Ile Lys Thr Ser His Asn His Leu Leu Ile Val Ser
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Thr Ala Glu Ile Leu Phe Asn Asp Ser Val Phe Thr Leu Leu Pro
  1055             1060             1065

Gly Gln Gly Ala Phe Val Arg Ser Gln Thr Glu Thr Lys Val Glu
  1070             1075             1080

Pro Phe Glu Val Pro Asn Pro Leu Pro Leu Ile Val Gly Ser Ser
  1085             1090             1095

Val Gly Gly Leu Leu Leu Leu Ala Leu Ile Thr Ala Ala Leu Tyr
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Lys Leu Gly Phe Phe Lys Arg Gln Tyr Lys Asp Met Met Ser Glu
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Gly Gly Pro Pro Gly Ala Glu Pro Gln
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 Thr Ser Pro Pro Gln Leu Leu Ala Cys Gly Pro Thr Val His Gln Thr
 85 90 95
 Cys Ser Glu Asn Thr Tyr Val Lys Gly Leu Cys Phe Leu Phe Gly Ser
 100 105 110
 Asn Leu Arg Gln Gln Pro Gln Lys Phe Pro Glu Ala Leu Arg Gly Cys
 115 120 125
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 130 135 140
 Ile Ile Pro His Asp Phe Arg Arg Met Lys Glu Trp Val Ser Thr Val
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 Met Glu Gln Leu Lys Lys Ser Lys Thr Leu Phe Ser Leu Met Gln Tyr
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 Ser Glu Glu Phe Arg Ile His Phe Thr Phe Lys Glu Phe Gln Asn Asn
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 Pro Asn Pro Arg Ser Leu Ile Lys Pro Ile Thr Gln Leu Leu Gly Arg
 195 200 205
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 245 250 255
 Pro Glu Leu Asp Arg Glu Gly Val Ile Arg Tyr Val Ile Gly Val Gly
 260 265 270
 Asp Ala Phe Arg Ser Glu Lys Ser Arg Gln Glu Leu Asn Thr Val Ala
 275 280 285

Ser Lys Pro Pro Arg Asp His Val Phe Gln Ile Asn Asn Phe Glu Ala
290 295 300

Leu Lys Thr Ile Gln Asn Gln Leu Arg Glu Lys Ile Phe Ala Ile Glu
305 310 315 320

Gly Thr Gln Thr Gly Ser Ser Ser Ser Phe Glu His Glu Met Ser Gln
325 330 335

Glu Gly Phe Ser Ala Ala Ile Thr Ser Asn Gly Pro Leu Leu Ser Thr
340 345 350

Val Gly Ser Tyr Asp Trp Ala Gly Gly Val Phe Leu Tyr Thr Ser Lys
355 360 365

Glu Lys Ser Thr Phe Ile Asn Met Thr Arg Val Asp Ser Asp Met Asn
370 375 380

Asp Ala Tyr Leu Gly Tyr Ala Ala Ala Ile Ile Leu Arg Asn Arg Val
385 390 395 400

Gln Ser Leu Val Leu Gly Ala Pro Arg Tyr Gln His Ile Gly Leu Val
405 410 415

Ala Met Phe Arg Gln Asn Thr Gly Met Trp Glu Ser Asn Ala Asn Val
420 425 430

Lys Gly Thr Gln Ile Gly Ala Tyr Phe Gly Ala Ser Leu Cys Ser Val
435 440 445

Asp Val Asp Ser Asn Gly Ser Thr Asp Leu Val Leu Ile Gly Ala Pro
450 455 460

His Tyr Tyr Glu Gln Thr Arg Gly Gly Gln Val Ser Val Cys Pro Leu
465 470 475 480

Pro Arg Gly Gln Arg Ala Arg Trp Gln Cys Asp Ala Val Leu Tyr Gly
485 490 495

Glu Gln Gly Gln Pro Trp Gly Arg Phe Gly Ala Ala Leu Thr Val Leu
500 505 510

Gly Asp Val Asn Gly Asp Lys Leu Thr Asp Val Ala Ile Gly Ala Pro
515 520 525

Gly Glu Glu Asp Asn Arg Gly Ala Val Tyr Leu Phe His Gly Thr Ser
530 535 540

Gly Ser Gly Ile Ser Pro Ser His Ser Gln Arg Ile Ala Gly Ser Lys
545 550 555 560

Leu Ser Pro Arg Leu Gln Tyr Phe Gly Gln Ser Leu Ser Gly Gly Gln
565 570 575

Asp Leu Thr Met Asp Gly Leu Val Asp Leu Thr Val Gly Ala Gln Gly
 580 585 590
 His Val Leu Leu Leu Arg Ser Gln Pro Val Leu Arg Val Lys Ala Ile
 595 600 605
 Met Glu Phe Asn Pro Arg Glu Val Ala Arg Asn Val Phe Glu Cys Asn
 610 615 620
 Asp Gln Val Val Lys Gly Lys Glu Ala Gly Glu Val Arg Val Cys Leu
 625 630 635 640
 His Val Gln Lys Ser Thr Arg Asp Arg Leu Arg Glu Gly Gln Ile Gln
 645 650 655
 Ser Val Val Thr Tyr Asp Leu Ala Leu Asp Ser Gly Arg Pro His Ser
 660 665 670
 Arg Ala Val Phe Asn Glu Thr Lys Asn Ser Thr Arg Arg Gln Thr Gln
 675 680 685
 Val Leu Gly Leu Thr Gln Thr Cys Glu Thr Leu Lys Leu Gln Leu Pro
 690 695 700
 Asn Cys Ile Glu Asp Pro Val Ser Pro Ile Val Leu Arg Leu Asn Phe
 705 710 715 720
 Ser Leu Val Gly Thr Pro Leu Ser Ala Phe Gly Asn Leu Arg Pro Val
 725 730 735
 Leu Ala Glu Asp Ala Gln Arg Leu Phe Thr Ala Leu Phe Pro Phe Glu
 740 745 750
 Lys Asn Cys Gly Asn Asp Asn Ile Cys Gln Asp Asp Leu Ser Ile Thr
 755 760 765
 Phe Ser Phe Met Ser Leu Asp Cys Leu Val Val Gly Gly Pro Arg Glu
 770 775 780
 Phe Asn Val Thr Val Thr Val Arg Asn Asp Gly Glu Asp Ser Tyr Arg
 785 790 795 800
 Thr Gln Val Thr Phe Phe Phe Pro Leu Asp Leu Ser Tyr Arg Lys Val
 805 810 815
 Ser Thr Leu Gln Asn Gln Arg Ser Gln Arg Ser Trp Arg Leu Ala Cys
 820 825 830
 Glu Ser Ala Ser Ser Thr Glu Val Ser Gly Ala Leu Lys Ser Thr Ser
 835 840 845
 Cys Ser Ile Asn His Pro Ile Phe Pro Glu Asn Ser Glu Val Thr Phe
 850 855 860

Asn Ile Thr Phe Asp Val Asp Ser Lys Ala Ser Leu Gly Asn Lys Leu
 865 870 875 880
 Leu Leu Lys Ala Asn Val Thr Ser Glu Asn Asn Met Pro Arg Thr Asn
 885 890 895
 Lys Thr Glu Phe Gln Leu Glu Leu Pro Val Lys Tyr Ala Val Tyr Met
 900 905 910
 Val Val Thr Ser His Gly Val Ser Thr Lys Tyr Leu Asn Phe Thr Ala
 915 920 925
 Ser Glu Asn Thr Ser Arg Val Met Gln His Gln Tyr Gln Val Ser Asn
 930 935 940
 Leu Gly Gln Arg Ser Leu Pro Ile Ser Leu Val Phe Leu Val Pro Val
 945 950 955 960
 Arg Leu Asn Gln Thr Val Ile Trp Asp Arg Pro Gln Val Thr Phe Ser
 965 970 975
 Glu Asn Leu Ser Ser Thr Cys His Thr Lys Glu Arg Leu Pro Ser His
 980 985 990
 Ser Asp Phe Leu Ala Glu Leu Arg Lys Ala Pro Val Val Asn Cys Ser
 995 1000 1005
 Ile Ala Val Cys Gln Arg Ile Gln Cys Asp Ile Pro Phe Phe Gly
 1010 1015 1020
 Ile Gln Glu Glu Phe Asn Ala Thr Leu Lys Gly Asn Leu Ser Phe
 1025 1030 1035
 Asp Trp Tyr Ile Lys Thr Ser His Asn His Leu Leu Ile Val Ser
 1040 1045 1050
 Thr Ala Glu Ile Leu Phe Asn Asp Ser Val Phe Thr Leu Leu Pro
 1055 1060 1065
 Gly Gln Gly Ala Phe Val Arg Ser Gln Thr Glu Thr Lys Val Glu
 1070 1075 1080
 Pro Phe Glu Val Pro Asn Pro Leu Pro Leu Ile Val Gly Ser Ser
 1085 1090 1095
 Val Gly Gly Leu Leu Leu Leu Ala Leu Ile Thr Ala Ala Leu Tyr
 1100 1105 1110
 Lys Leu Gly Phe Phe Lys Arg Gln Tyr Lys Asp Met Met Ser Glu
 1115 1120 1125
 Gly Gly Pro Pro Gly Ala Glu Pro Gln
 1130 1135

<210> 5
 <211> 1137
 <212> PRT
 <213> Artificial sequence

 <220>
 <223> synthetic

 <400> 5

 Phe Asn Leu Asp Thr Glu Asn Ala Met Thr Phe Gln Glu Asn Ala Arg
 1 5 10 15

 Gly Phe Gly Gln Ser Val Val Gln Leu Gln Gly Ser Arg Val Val Val
 20 25 30

 Gly Ala Pro Gln Glu Ile Val Ala Ala Asn Gln Arg Gly Ser Leu Tyr
 35 40 45

 Gln Cys Asp Tyr Ser Thr Gly Ser Cys Glu Pro Ile Arg Leu Gln Val
 50 55 60

 Pro Val Glu Ala Val Asn Met Ser Leu Gly Leu Ser Leu Ala Ala Thr
 65 70 75 80

 Thr Ser Pro Pro Gln Leu Leu Ala Cys Gly Pro Thr Val His Gln Thr
 85 90 95

 Cys Ser Glu Asn Thr Tyr Val Lys Gly Leu Cys Phe Leu Phe Gly Ser
 100 105 110

 Asn Leu Arg Gln Gln Pro Gln Lys Phe Pro Glu Ala Leu Arg Gly Cys
 115 120 125

 Pro Gln Glu Asp Ser Asp Ile Ala Phe Leu Val Asp Gly Ser Gly Ser
 130 135 140

 Ile Ile Pro His Asp Phe Arg Arg Ala Lys Glu Phe Ile Ser Thr Val
 145 150 155 160

 Met Glu Gln Leu Lys Lys Ser Lys Thr Leu Phe Ser Leu Met Gln Tyr
 165 170 175

 Ser Glu Glu Phe Arg Ile His Phe Thr Phe Lys Glu Phe Gln Asn Asn
 180 185 190

 Pro Asn Pro Arg Ser Leu Ile Lys Pro Ile Thr Gln Leu Leu Gly Arg
 195 200 205

 Thr His Thr Ala Thr Gly Ile Arg Lys Val Val Arg Glu Leu Phe Asn
 210 215 220

 Ile Thr Asn Gly Ala Arg Lys Asn Ala Phe Lys Ile Leu Ile Leu Ile
 225 230 235 240

 Thr Asp Gly Glu Lys Phe Gly Asp Pro Leu Gly Tyr Glu Asp Val Ile

245	250	255
Pro Glu Ala Asp Arg Glu Gly Val Ile Arg Tyr Val Ile Gly Val Gly		
260	265	270
Asp Ala Phe Arg Ser Glu Lys Ser Arg Gln Glu Leu Asn Thr Val Ala		
275	280	285
Ser Lys Pro Pro Arg Asp His Val Phe Gln Ile Asn Asn Phe Glu Ala		
290	295	300
Leu Lys Thr Ile Gln Asn Gln Leu Arg Glu Lys Ile Phe Ala Ile Glu		
305	310	315
Gly Thr Gln Thr Gly Ser Ser Ser Ser Phe Glu His Glu Met Ser Gln		
325	330	335
Glu Gly Phe Ser Ala Ala Ile Thr Ser Asn Gly Pro Leu Leu Ser Thr		
340	345	350
Val Gly Ser Tyr Asp Trp Ala Gly Gly Val Phe Leu Tyr Thr Ser Lys		
355	360	365
Glu Lys Ser Thr Phe Ile Asn Met Thr Arg Val Asp Ser Asp Met Asn		
370	375	380
Asp Ala Tyr Leu Gly Tyr Ala Ala Ala Ile Ile Leu Arg Asn Arg Val		
385	390	395
Gln Ser Leu Val Leu Gly Ala Pro Arg Tyr Gln His Ile Gly Leu Val		
405	410	415
Ala Met Phe Arg Gln Asn Thr Gly Met Trp Glu Ser Asn Ala Asn Val		
420	425	430
Lys Gly Thr Gln Ile Gly Ala Tyr Phe Gly Ala Ser Leu Cys Ser Val		
435	440	445
Asp Val Asp Ser Asn Gly Ser Thr Asp Leu Val Leu Ile Gly Ala Pro		
450	455	460
His Tyr Tyr Glu Gln Thr Arg Gly Gly Gln Val Ser Val Cys Pro Leu		
465	470	475
Pro Arg Gly Gln Arg Ala Arg Trp Gln Cys Asp Ala Val Leu Tyr Gly		
485	490	495
Glu Gln Gly Gln Pro Trp Gly Arg Phe Gly Ala Ala Leu Thr Val Leu		
500	505	510
Gly Asp Val Asn Gly Asp Lys Leu Thr Asp Val Ala Ile Gly Ala Pro		
515	520	525
Gly Glu Glu Asp Asn Arg Gly Ala Val Tyr Leu Phe His Gly Thr Ser		

530	535	540
Gly Ser Gly Ile Ser Pro Ser His Ser Gln Arg Ile Ala Gly Ser Lys 545 550 555 560		
Leu Ser Pro Arg Leu Gln Tyr Phe Gly Gln Ser Leu Ser Gly Gly Gln 565 570 575		
Asp Leu Thr Met Asp Gly Leu Val Asp Leu Thr Val Gly Ala Gln Gly 580 585 590		
His Val Leu Leu Leu Arg Ser Gln Pro Val Leu Arg Val Lys Ala Ile 595 600 605		
Met Glu Phe Asn Pro Arg Glu Val Ala Arg Asn Val Phe Glu Cys Asn 610 615 620		
Asp Gln Val Val Lys Gly Lys Glu Ala Gly Glu Val Arg Val Cys Leu 625 630 635 640		
His Val Gln Lys Ser Thr Arg Asp Arg Leu Arg Glu Gly Gln Ile Gln 645 650 655		
Ser Val Val Thr Tyr Asp Leu Ala Leu Asp Ser Gly Arg Pro His Ser 660 665 670		
Arg Ala Val Phe Asn Glu Thr Lys Asn Ser Thr Arg Arg Gln Thr Gln 675 680 685		
Val Leu Gly Leu Thr Gln Thr Cys Glu Thr Leu Lys Leu Gln Leu Pro 690 695 700		
Asn Cys Ile Glu Asp Pro Val Ser Pro Ile Val Leu Arg Leu Asn Phe 705 710 715 720		
Ser Leu Val Gly Thr Pro Leu Ser Ala Phe Gly Asn Leu Arg Pro Val 725 730 735		
Leu Ala Glu Asp Ala Gln Arg Leu Phe Thr Ala Leu Phe Pro Phe Glu 740 745 750		
Lys Asn Cys Gly Asn Asp Asn Ile Cys Gln Asp Asp Leu Ser Ile Thr 755 760 765		
Phe Ser Phe Met Ser Leu Asp Cys Leu Val Val Gly Gly Pro Arg Glu 770 775 780		
Phe Asn Val Thr Val Thr Val Arg Asn Asp Gly Glu Asp Ser Tyr Arg 785 790 795 800		
Thr Gln Val Thr Phe Phe Phe Pro Leu Asp Leu Ser Tyr Arg Lys Val 805 810 815		
Ser Thr Leu Gln Asn Gln Arg Ser Gln Arg Ser Trp Arg Leu Ala Cys		

820	825	830
Glu Ser Ala Ser Ser Thr Glu Val Ser Gly Ala Leu Lys Ser Thr Ser 835 840 845		
Cys Ser Ile Asn His Pro Ile Phe Pro Glu Asn Ser Glu Val Thr Phe 850 855 860		
Asn Ile Thr Phe Asp Val Asp Ser Lys Ala Ser Leu Gly Asn Lys Leu 865 870 875 880		
Leu Leu Lys Ala Asn Val Thr Ser Glu Asn Asn Met Pro Arg Thr Asn 885 890 895		
Lys Thr Glu Phe Gln Leu Glu Leu Pro Val Lys Tyr Ala Val Tyr Met 900 905 910		
Val Val Thr Ser His Gly Val Ser Thr Lys Tyr Leu Asn Phe Thr Ala 915 920 925		
Ser Glu Asn Thr Ser Arg Val Met Gln His Gln Tyr Gln Val Ser Asn 930 935 940		
Leu Gly Gln Arg Ser Leu Pro Ile Ser Leu Val Phe Leu Val Pro Val 945 950 955 960		
Arg Leu Asn Gln Thr Val Ile Trp Asp Arg Pro Gln Val Thr Phe Ser 965 970 975		
Glu Asn Leu Ser Ser Thr Cys His Thr Lys Glu Arg Leu Pro Ser His 980 985 990		
Ser Asp Phe Leu Ala Glu Leu Arg Lys Ala Pro Val Val Asn Cys Ser 995 1000 1005		
Ile Ala Val Cys Gln Arg Ile Gln Cys Asp Ile Pro Phe Phe Gly 1010 1015 1020		
Ile Gln Glu Glu Phe Asn Ala Thr Leu Lys Gly Asn Leu Ser Phe 1025 1030 1035		
Asp Trp Tyr Ile Lys Thr Ser His Asn His Leu Leu Ile Val Ser 1040 1045 1050		
Thr Ala Glu Ile Leu Phe Asn Asp Ser Val Phe Thr Leu Leu Pro 1055 1060 1065		
Gly Gln Gly Ala Phe Val Arg Ser Gln Thr Glu Thr Lys Val Glu 1070 1075 1080		
Pro Phe Glu Val Pro Asn Pro Leu Pro Leu Ile Val Gly Ser Ser 1085 1090 1095		
Val Gly Gly Leu Leu Leu Leu Ala Leu Ile Thr Ala Ala Leu Tyr		

1100 1105 1110

Lys Leu Gly Phe Phe Lys Arg Gln Tyr Lys Asp Met Met Ser Glu
 1115 1120 1125

Gly Gly Pro Pro Gly Ala Glu Pro Gln
 1130 1135

<210> 6
 <211> 1137
 <212> PRT
 <213> Artificial sequence

<220>
 <223> synthetic

<400> 6

Phe Asn Leu Asp Thr Glu Asn Ala Met Thr Phe Gln Glu Asn Ala Arg
 1 5 10 15

Gly Phe Gly Gln Ser Val Val Gln Leu Gln Gly Ser Arg Val Val Val
 20 25 30

Gly Ala Pro Gln Glu Ile Val Ala Ala Asn Gln Arg Gly Ser Leu Tyr
 35 40 45

Gln Cys Asp Tyr Ser Thr Gly Ser Cys Glu Pro Ile Arg Leu Gln Val
 50 55 60

Pro Val Glu Ala Val Asn Met Ser Leu Gly Leu Ser Leu Ala Ala Thr
 65 70 75 80

Thr Ser Pro Pro Gln Leu Leu Ala Cys Gly Pro Thr Val His Gln Thr
 85 90 95

Cys Ser Glu Asn Thr Tyr Val Lys Gly Leu Cys Phe Leu Phe Gly Ser
 100 105 110

Asn Leu Arg Gln Gln Pro Gln Lys Phe Pro Glu Ala Leu Arg Gly Cys
 115 120 125

Pro Gln Glu Asp Ser Asp Ile Ala Phe Leu Ile Asp Gly Ser Gly Ser
 130 135 140

Ile Ile Pro His Asp Phe Arg Arg Met Lys Glu Phe Val Ser Thr Val
 145 150 155 160

Met Glu Gln Leu Lys Lys Ser Lys Thr Leu Phe Ser Leu Met Gln Tyr
 165 170 175

Ser Glu Glu Phe Arg Ile His Phe Thr Phe Lys Glu Phe Gln Asn Asn
 180 185 190

Pro Asn Pro Arg Ser Leu Val Lys Pro Ile Thr Gln Leu Leu Gly Arg
 195 200 205

Thr His Thr Ala Thr Gly Val Arg Lys Val Ile Arg Glu Leu Leu Asn
210 215 220

Ile Thr Asn Gly Ala Arg Lys Asn Ala Phe Lys Ile Leu Ile Val Ile
225 230 235 240

Thr Asp Gly Glu Lys Phe Gly Asp Pro Leu Gly Tyr Glu Asp Val Ile
245 250 255

Pro Glu Ala Asp Arg Glu Gly Val Ile Arg Tyr Val Ile Gly Val Gly
260 265 270

Asp Ala Phe Arg Ser Glu Lys Ser Arg Gln Glu Leu Asn Thr Ile Ala
275 280 285

Ser Lys Pro Pro Arg Asp His Val Phe Gln Val Asn Asn Phe Glu Ala
290 295 300

Leu Lys Thr Ile Gln Asn Gln Leu Arg Glu Lys Ile Phe Ala Ile Glu
305 310 315 320

Gly Thr Gln Thr Gly Ser Ser Ser Ser Phe Glu His Glu Met Ser Gln
325 330 335

Glu Gly Phe Ser Ala Ala Ile Thr Ser Asn Gly Pro Leu Leu Ser Thr
340 345 350

Val Gly Ser Tyr Asp Trp Ala Gly Gly Val Phe Leu Tyr Thr Ser Lys
355 360 365

Glu Lys Ser Thr Phe Ile Asn Met Thr Arg Val Asp Ser Asp Met Asn
370 375 380

Asp Ala Tyr Leu Gly Tyr Ala Ala Ala Ile Ile Leu Arg Asn Arg Val
385 390 395 400

Gln Ser Leu Val Leu Gly Ala Pro Arg Tyr Gln His Ile Gly Leu Val
405 410 415

Ala Met Phe Arg Gln Asn Thr Gly Met Trp Glu Ser Asn Ala Asn Val
420 425 430

Lys Gly Thr Gln Ile Gly Ala Tyr Phe Gly Ala Ser Leu Cys Ser Val
435 440 445

Asp Val Asp Ser Asn Gly Ser Thr Asp Leu Val Leu Ile Gly Ala Pro
450 455 460

His Tyr Tyr Glu Gln Thr Arg Gly Gly Gln Val Ser Val Cys Pro Leu
465 470 475 480

Pro Arg Gly Gln Arg Ala Arg Trp Gln Cys Asp Ala Val Leu Tyr Gly
485 490 495

Glu Gln Gly Gln Pro Trp Gly Arg Phe Gly Ala Ala Leu Thr Val Leu
500 505 510

Gly Asp Val Asn Gly Asp Lys Leu Thr Asp Val Ala Ile Gly Ala Pro
515 520 525

Gly Glu Glu Asp Asn Arg Gly Ala Val Tyr Leu Phe His Gly Thr Ser
530 535 540

Gly Ser Gly Ile Ser Pro Ser His Ser Gln Arg Ile Ala Gly Ser Lys
545 550 555 560

Leu Ser Pro Arg Leu Gln Tyr Phe Gly Gln Ser Leu Ser Gly Gly Gln
565 570 575

Asp Leu Thr Met Asp Gly Leu Val Asp Leu Thr Val Gly Ala Gln Gly
580 585 590

His Val Leu Leu Leu Arg Ser Gln Pro Val Leu Arg Val Lys Ala Ile
595 600 605

Met Glu Phe Asn Pro Arg Glu Val Ala Arg Asn Val Phe Glu Cys Asn
610 615 620

Asp Gln Val Val Lys Gly Lys Glu Ala Gly Glu Val Arg Val Cys Leu
625 630 635 640

His Val Gln Lys Ser Thr Arg Asp Arg Leu Arg Glu Gly Gln Ile Gln
645 650 655

Ser Val Val Thr Tyr Asp Leu Ala Leu Asp Ser Gly Arg Pro His Ser
660 665 670

Arg Ala Val Phe Asn Glu Thr Lys Asn Ser Thr Arg Arg Gln Thr Gln
675 680 685

Val Leu Gly Leu Thr Gln Thr Cys Glu Thr Leu Lys Leu Gln Leu Pro
690 695 700

Asn Cys Ile Glu Asp Pro Val Ser Pro Ile Val Leu Arg Leu Asn Phe
705 710 715 720

Ser Leu Val Gly Thr Pro Leu Ser Ala Phe Gly Asn Leu Arg Pro Val
725 730 735

Leu Ala Glu Asp Ala Gln Arg Leu Phe Thr Ala Leu Phe Pro Phe Glu
740 745 750

Lys Asn Cys Gly Asn Asp Asn Ile Cys Gln Asp Asp Leu Ser Ile Thr
755 760 765

Phe Ser Phe Met Ser Leu Asp Cys Leu Val Val Gly Gly Pro Arg Glu
770 775 780

Phe Asn Val Thr Val Thr Val Arg Asn Asp Gly Glu Asp Ser Tyr Arg
 785 790 795 800
 Thr Gln Val Thr Phe Phe Phe Pro Leu Asp Leu Ser Tyr Arg Lys Val
 805 810 815
 Ser Thr Leu Gln Asn Gln Arg Ser Gln Arg Ser Trp Arg Leu Ala Cys
 820 825 830
 Glu Ser Ala Ser Ser Thr Glu Val Ser Gly Ala Leu Lys Ser Thr Ser
 835 840 845
 Cys Ser Ile Asn His Pro Ile Phe Pro Glu Asn Ser Glu Val Thr Phe
 850 855 860
 Asn Ile Thr Phe Asp Val Asp Ser Lys Ala Ser Leu Gly Asn Lys Leu
 865 870 875 880
 Leu Leu Lys Ala Asn Val Thr Ser Glu Asn Asn Met Pro Arg Thr Asn
 885 890 895
 Lys Thr Glu Phe Gln Leu Glu Leu Pro Val Lys Tyr Ala Val Tyr Met
 900 905 910
 Val Val Thr Ser His Gly Val Ser Thr Lys Tyr Leu Asn Phe Thr Ala
 915 920 925
 Ser Glu Asn Thr Ser Arg Val Met Gln His Gln Tyr Gln Val Ser Asn
 930 935 940
 Leu Gly Gln Arg Ser Leu Pro Ile Ser Leu Val Phe Leu Val Pro Val
 945 950 955 960
 Arg Leu Asn Gln Thr Val Ile Trp Asp Arg Pro Gln Val Thr Phe Ser
 965 970 975
 Glu Asn Leu Ser Ser Thr Cys His Thr Lys Glu Arg Leu Pro Ser His
 980 985 990
 Ser Asp Phe Leu Ala Glu Leu Arg Lys Ala Pro Val Val Asn Cys Ser
 995 1000 1005
 Ile Ala Val Cys Gln Arg Ile Gln Cys Asp Ile Pro Phe Phe Gly
 1010 1015 1020
 Ile Gln Glu Glu Phe Asn Ala Thr Leu Lys Gly Asn Leu Ser Phe
 1025 1030 1035
 Asp Trp Tyr Ile Lys Thr Ser His Asn His Leu Leu Ile Val Ser
 1040 1045 1050
 Thr Ala Glu Ile Leu Phe Asn Asp Ser Val Phe Thr Leu Leu Pro
 1055 1060 1065

Gly Gln Gly Ala Phe Val Arg Ser Gln Thr Glu Thr Lys Val Glu
1070 1075 1080

Pro Phe Glu Val Pro Asn Pro Leu Pro Leu Ile Val Gly Ser Ser
1085 1090 1095

Val Gly Gly Leu Leu Leu Leu Ala Leu Ile Thr Ala Ala Leu Tyr
1100 1105 1110

Lys Leu Gly Phe Phe Lys Arg Gln Tyr Lys Asp Met Met Ser. Glu
1115 1120 1125

Gly Gly Pro Pro Gly Ala Glu Pro Gln
1130 1135

<210> 7
<211> 10
<212> PRT
<213> Artificial sequence

<220>
<223> stability sequence

<220>
<221> MISC_FEATURE
<222> (3)..(6)
<223> "Xaa" at positions 3 through 6 can be any amino acid.

<400> 7

Met Gly Xaa Xaa Xaa Xaa Gly Gly Pro Pro
1 5 10